

**USDA
NATURAL RESOURCES
CONSERVATION SERVICE
DELAWARE
INTERIM
CONSERVATION
PRACTICE STANDARD**

INCINERATOR

**CODE 769
(Reported by Each)**

operator shall be responsible for securing all required permits, approvals, and registration and for the operation of the unit in accordance with appropriate laws, rules, and regulations. (See Appendix A). Delaware Department of Natural Resources and Environmental Control (DNREC) currently requires incinerators to have two chambers. Dual chamber incinerators installed for dead animal disposal must be registered with DNREC prior to construction and operation. DNREC will require stack testing for single chamber units not previously tested and approved. Owners or operators should contact DNREC before making financial commitments for a particular unit to determine if that unit has been approved. Stack testing is expensive compared to the cost of the incinerator.

DEFINITION

An incinerator used to dispose of mortalities from poultry operations.

PURPOSE

The purpose of this practice is to provide a suitable disposal method of dead poultry to prevent pollution and improve environmental quality.

This standard covers the planning, sizing, and installation of a manufactured incinerator for the disposal of poultry mortalities.

**CONDITIONS WHERE PRACTICE
APPLIES**

This practice applies where current disposal practices of dead poultry are unsatisfactory and where there is a need to improve sanitation, reduce pollution, or enhance the visual resource.

The incinerators are sized for normal mortalities and are not intended for disposal of the large quantities of dead birds that can result from a catastrophic event.

All federal, state, and local laws, rules, and regulations governing waste management, pollution abatement, and health and safety shall be strictly adhered to. The owner or

DESIGN CRITERIA

The required minimum incinerator capacity will be determined using the following table or formula methods:

<u>Type Animal</u>	<u>Daily Loss Factor (lb/day/animal)</u>
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Chickens:

Broilers (4.2 lbs)	0.0050
Laying Hens (4.5 lbs)	0.0014
Roasters (6.5 lbs)	0.0080
Breeding Hens (7.5 lbs)	0.0019
Breeder, Male (11 lbs)	0.0082

If detailed records are available, the following formula can be used to determine the Daily Loss Factor for a specific operation:

$$\frac{MW \times AM}{L} = \text{Daily Loss Factor}$$

Where:

MW = Mature weight of the animal (i.e. - 4.2 lbs)

AM = Average mortality for the life of the animals, as a decimal (i.e. - 0.05)

L = Life of the animals in days (i.e. - 42 Days)

Example 1 (Using Formula):

Conservation practice standards are reviewed periodically, and updated if needed. To obtain the current version of this standard, contact the Natural Resources Conservation Service.

Given: 36,000 roasters
6.5 lb market weight
8% average mortality
65 day flock life

$$\text{Daily Loss Factor} = \frac{6.5 \times 0.08}{65} = 0.008 \text{ lb/day/bird}$$

Average daily weight of dead birds:
 $36,000 \times 0.008 = 288 \text{ lbs/day}$

Incinerator capacity:
Minimum 288 lbs per loading capacity

Example 2 (Using Table Value):

Number of broilers = 42,000

Average daily weight of dead broilers:
 $42,000 \times 0.005 = 210 \text{ lbs/day}$

Incinerator capacity:
Minimum 210 lbs per loading capacity

The recommended incinerator size will be the smallest size available that will handle the required minimum capacity. More than one incinerator may be required for larger operations. Heavy mortalities at the end of a cycle may require loading the incinerator more than once a day.

Any operation using incineration for disposal of dead poultry will have a plan for collecting and disposing of the ash material remaining after incineration. This plan will be contained in the Nutrient Management Plan established for the operation. The plan will require the use of an ash collection box or bucket and disposal of the ash on the land or through a community trash disposal system.

Under present DNREC policy, only double chamber incinerators with a burner in each chamber are approved for use. Single burner units will be required to pass a stack test (which demonstrates compliance with the regulation) before DNREC will approve their

use in Delaware. DNREC will maintain a list of approved units.

Electrical hook-up to be installed as per standard industry practices but in no case less than the minimum requirements of the most recent edition of the National Electrical Code. Installation must be certified by a qualified licensed electrician. All electrical wiring shall be in conduit at the incinerator. Wherever installation could be classified as a hazardous location, specific conformance to Article 500 of the National Electrical Code will be met.

Gas hook-up must be certified in writing by a qualified state licensed Liquified Petroleum Contractor to meet National Fire Protection Association (NFPA) Code 54 & 58; all other state, national, and local codes; and in accordance with the manufacturer's recommendations. Other fuel sources must meet all state and local codes for transmission of flammable or volatile fuels. For diesel-fired incinerators, a Spill Prevention, Control, and Countermeasures (SPCC) Plan shall be prepared by a registered professional engineer for any individual fuel storage tank in excess of 660 gallons, or cumulative storage capacity of multiple tanks in excess of 1,320 gallons.

Location of Incinerators

Locate the incinerator according to the following requirements:

- at least 20 feet from any building to prevent spontaneous combustion
- at least 50 feet from any surface water source
- at least 100 feet from any well or subsurface water source
- at least 500 feet from any residence located off the property of the owner/operator

- on a concrete slab

CONSIDERATIONS

Consideration should be given to providing roof protection for the incinerator to extend the life of the unit. Metal roof purlins and covering should be used to prevent spontaneous combustion from the stack.

Consideration should be given to the use of an afterburner to reduce any objectionable odors, fumes and particulate fallout to acceptable levels.

SPECIFICATIONS

Scope

This item shall consist of the clearing, excavation, backfill, concrete, reinforcing steel, and other appurtenances required for the installation of an incinerator and the disposal of all cleared and excavated materials. Construction shall be carried out in such a manner that erosion, water, air, and noise pollution will be minimized and held within legal limits as established by State regulations.

Clearing and Grubbing

All trees, brush, and stumps shall be removed from the site and spoil areas before excavation is performed. All material cleared from the area shall be disposed of by burning or burying on-site or hauling to an appropriate landfill. All burning shall conform to regulations and laws of Delaware.

Excavation

Soils containing excessive organic material will be removed from the foundation area. The completed excavation and placement of spoil material shall conform as nearly to lines, dimensions, grades, and slopes shown on the plans or staked on the site as skillful operation of the excavating equipment will permit.

Concrete

This work shall consist of furnishing, forming, placing, finishing, and curing

Portland cement concrete. The concrete mixture shall be no less than a five (5) bag per yard mix. The water content shall not exceed 6 gallons per bag of cement. The concrete will be thoroughly rodded or vibrated and spaded to remove air voids and produce dense, watertight concrete. Concrete shall contain a standard known brand of Portland cement with washed sand and gravel. Clean water shall be used in the mix. [Suggested ratio of aggregates in mix:
94 lbs. cement (1 bag), 6 gallons water,
170 lbs. clean dry sand, 315 lbs. dry gravel.
Smaller batches: 1 part cement, 2 parts sand, and 3 parts gravel; add water at the rate of 1 gallon per 16 lbs of cement.]

Installation of Incinerator

Incinerators will be installed according to all national, state, and local laws, regulations, and codes, and the manufacturer's instructions. It shall be installed on a concrete pad. It may be protected by a house structure or by a roof structure with metal purlins and roofing material.

Vegetation

Vegetation shall be applied to all disturbed areas as critical area planting and will include liming, fertilizing, seedbed preparation, seeding, and mulching. If farm animals will have access to the area, the area around the incinerator will be fenced, if appropriate.

Approval

A complete copy of the design will be filed by the district conservationist.

OPERATIONS AND MAINTENANCE

The manufacturer's instructions regarding the operation and maintenance will be followed.

It is the responsibility of the operator of the incinerator to operate the unit in a manner such as is necessary to prevent the emission of objectionable odors, fumes and particulate fallout to the extent that they are not a nuisance to neighbors and others living downwind.

SUPPORTING DATA AND DOCUMENTATION

The following is a list of the minimum data and documentation to be recorded in the case file:

Planning Information, Field Data, and Survey Notes

1. Field location of the incinerator and assistance. Also note the location of the incinerator on the conservation plan map.
2. Description of the objectives of the practice, including the desired functions which the incinerator is expected to provide.
3. Soil investigation logs and notes, as appropriate for the site conditions.
4. Topographic survey of the site, as appropriate for site conditions and the proposed design.

Design Data

1. Computations establishing the design capacity of the incinerator, the manufacturer and model number of the selected incinerator along with its rated capacity.
2. Location map with site identified.
3. Soil map with site identified.
4. Standard drawings of the concrete base.
5. Details of incinerator attachment to the concrete base (provided by the manufacturer).
6. Details of the roof (if any) attachment to the concrete base (provided by the manufacturer).
7. Operation and maintenance plans or completed copy of the appropriate job sheet(s) if used, with DNREC Guidance for Poultry Incineration (Appendix A) attached.

Construction Check Data/As Built

1. Check notes recorded during or after completion of construction showing as-built conditions of the practice.
2. Sign and date construction check notes to include statement that practice meets or exceeds plans and specifications.

REFERENCES

National Electric Code
National Fire Protection Association Code
DNREC Guidance for Poultry Incineration (Appendix A)